



THE UPPER WHITE RIVER REVIEW

*The Newsletter of the South Missouri Water Quality Project, a USDA-NRCS Water Quality Office
Providing Conservation Solutions To Non-Point Source Water Pollution.*

Clear...Concise...and to the Non-Point

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Ozark, MO 65721

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Stewardship Compass by Steve Hefner



South Missouri Water Quality Project
Team Leader

The winter of 2007 has been brutal for southern Missourians. The drought that preceded the winter season left many farmers without grass and feeding hay in later summer. As the fall season gave way to winter, an ice storm of historical proportion covered part of the Upper White River Watershed and left thousands without electrical power for as long as 12 days. Many producers scrambled for alternative ways to run pumps to water livestock

and patching fences from limb damage that broke under the weight of the ice.

As hay reserves dwindled in late winter prices were at a premium, more than doubling in value. It became evident, those practicing best management practices for forage management were in a better position to endure the winter season. Producers who utilized appropriate livestock stocking rates, practiced rotational grazing, and sound nutrient management were in a position to actually market hay and capitalize on premium prices.

This issue of the Upper White River Review will highlight a couple of articles addressing conservation practices for grazing land. The NRCS provides technical and financial assistance for grazing operations. When implemented, this type of conservation will help you survive periods of agricultural adversity, like those experienced this winter. The South Missouri Water Quality Project supports local field personnel in conservation planning activities. If you are interested in grassland conservation, contact your local USDA Service Center or local Soil and Water Conservation District.

Conference Teaches Latest Techniques

Knowledge empowers people and thanks to a conference held on February 17, 2007 local producers are now better equipped to produce forages while protecting natural resources. Guest speakers presented the latest information concerning warm season grass production, equine and goat grazing management, brush and weed control options, and land and wildlife stewardship. The conference was hosted by the Howell County Soil and Water Conservation District (SWCD), through the support of an Information/Education grant funding administered by the Missouri Department of Natural Resources.

"The conference was a success because of the cooperation of many state

and federal agencies with conservation interests," said John Cash, Howell County SWCD. The planning committee included individuals from University Extension, Missouri Department of Conservation, the USDA Natural Resources Conservation Service, and the Howell County Soil and Water Conservation District. The cooperative effort produced a conference agenda that fostered nearly 100 people to attend.

"We have received positive feedback concerning this year's conference and are looking forward to hosting another conference in 2008. Bringing conservation information to our local constituents is an important goal for our conservation district," noted Cash.

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Prescribed Grazing Enhances Productivity

During Adverse Conditions

Prescribed grazing simply involves the controlled harvest of forages with grazing animals. This practice is applied as part of a conservation management system that can improve the health and vigor of forage stands and livestock, improve water resources, improve soil conditions, and the economic stability of producers during times of agricultural adversity. Paramount to this practice is the ability to divert animals from frequently grazed areas. Usually, this is accomplished by construction of internal fences and additional watering points.

Water is frequently the most overlooked and neglected nutrient on the farm. Livestock can not be expected to thrive while drinking water that is not of good quality. The key to animal health, grazing distribution, and forage management is a readily available, adequate supply of quality water.

Livestock should never have to travel more than 600 to 800 feet to water. When the distance to water is greater than 800 feet, getting a drink becomes a social event—the entire herd will go together. Even controlled-access facilities that are larger than necessary encourage animals to loaf. Time spent loafing is a “hidden cost.” It wastes time that the animals should spend grazing.

As producers control grazing by moving animals to different sections of the farm, pastures experience “rest periods” and re-grow. When too much of the above ground foliage is removed, plants must draw energy reserves from roots in order to grow more leaves. By avoiding overgrazing, root systems of grass stands remain strong and plants are more effective at withstanding drought.

Another benefit of prescribed grazing, involves better

nutrient application. As livestock more fully utilize the entire farm, the manure distribution is enhanced. Phosphorus and potassium are readily recycled in pastures and forages grow and survive drought better when the soil supplies adequate nutrition (see *Managing Soil Fertility Buildup*).

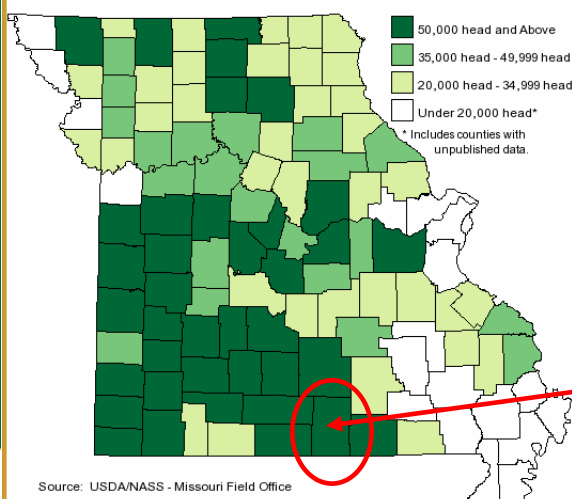
In the Ozarks, many of our soils have low water holding capacities. This supports a local adage, “we are always just 10 days away from a drought.” Installing a prescribed grazing system may not make it rain, but it will stretch limited supplies of both water and forages. If you are interested in better grazing management, contact your local USDA Service Center or SWCD.

-excerpts in this article were extracted from a USDA-NRCS handbook prepared by Mark Green, Ian Kurtz, and Mark Kennedy.



Providing quality drinking water for livestock is a key goal for grazing systems.

2006 All Cattle Inventory by County



Importance of Cattle in the Upper White River Basin

- Eleven counties in the Upper White River Basin have over 50,000 head of cattle produced.
- Six of the top 10 counties for cattle production in Missouri have drainage entering the Upper White River Basin.
- In 2006, the estimated value of cattle in Howell County was over 90 million dollars.

Managing Soil Fertility Buildup

Cooperative study with the University of Missouri Verifies Hay and Pasture Recommendations

In Missouri, soil test recommendations for phosphorus and potassium are based on an annual maintenance requirement to sustain crop growth and a buildup component if nutrient concentrations fall below established target values. Many soil testing laboratories allow farmers to choose the number of growing seasons needed to build fields back to optimum fertility levels. "If farmers fail to indicate their preference, then the soil test lab will use a default value (usually 8 years). The total amount of fertilizer recommended will be the same over the long haul, but the difference will be the amount applied per year," said Dr. Gene Stevens, principle investigator. He relates the recommendations to a popular oil filter commercial - "You can pay me now or pay me later."

"Long term investigations of nutrient build-up programs are important to help farmers manage limited financial resources for maximum profit," said Stevens. "Growers need information concerning the magnitude of yield loss that may occur on infertile fields early in an 8 year buildup program as compared to a shorter period of time."

Hay and pasture field trials were initiated near Pomona, Missouri in 2004 on a soil deficient in phosphorus and at a medium fertility level for potassium. Many factors, especially rainfall, influence forage production. Rainfall and forage yields in Howell County was unusually low in 2005 and 2006 (see figure 1 for state historical yields). However, preliminary data has also shown the importance of a complete soil fertility program. In 2006, nitrogen fertilizer alone increased fescue dry matter yields 33% compared to no fertilizer. Applying the phosphorus and potassium with the nitrogen increased hay yields an additional 35% when compared to the nitro-



A bag mower collects grass yields from field plots with various fertilizer treatments.

ject Team Leader. "Managing nutrients is important, whether managing to remove the threat of surplus nutrients entering surface and ground water, or in this case, managing nutrients on land that is relatively infertile. Hay was in short supply this winter. Conservation practices that serve to produce more vegetation are both good for the environment and individual producers."

gen fertilizer alone.

Grant support from the Missouri Fertilizer and Lime Board to the University of Missouri Delta Center will ensure the project will continue to 2012. The South Missouri Water Quality Project has been cooperating with the University of Missouri Delta Center, an agricultural experiment station, to verify existing recommendations for southern Missouri.

"We are proud to be participating in an activity that is so relevant for our area," said Steve Hefner, South Missouri Water Quality Pro-

"Long term investigations of nutrient build-up programs are important to help farmers manage limited financial resources for maximum profit."

**Dr. Gene Stevens,
Principle Investigator,
University of Missouri**

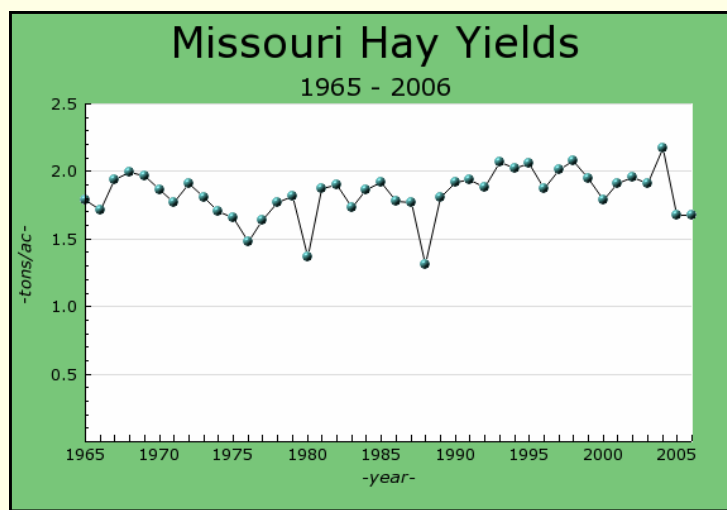


Figure 1.

Volunteers Provide Aid in Protecting Natural Resources



Volunteers hand-planted over 1600 trees along Ward Branch, an urban stream in Springfield, MO.

This spring an urban stream corridor was set on the road to recovery. On March 17th, volunteers from various organizations including the South Missouri Flyfisherman's Association, Ozark Greenways volunteers, area stream teams, AmeriCorps volunteers, and high school students all came together to plant over 1,600 seedlings along the banks of Ward Branch. Robert DeMoss, forester with the South Missouri Water Quality Project, prepared the Riparian Forest Buffer Plan and provided instruction during tree planting.

The establishment of this riparian

forest buffer resulted from extensive planning on a multi-agency level. Resource managers from Greene County Resource Department, Missouri Conservation Heritage Foundation, Watershed Committee of the Ozarks, Missouri Department of Conservation, South Missouri Water Quality Project (NRCS), City of Springfield, and MSU-Ozark Environmental & Water Resources Institute collaborated over several months to come up with a plan of action to stabilize bank erosion and reduce impacts of flooding. As a result of this planning, nearly 1 mile of Ward Branch was stabilized through establishment of woody vegetation and rock blankets along the stream corridor. Much of the bank stabilization would not have been possible without the cooperation from the Twin Oaks Golf Course where a portion of the

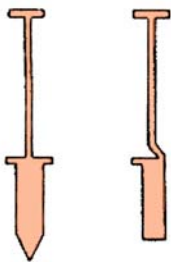
stream passes through.

Ward Branch is located in southern Green County and originates as an urban drainage in Springfield, MO that carries urban storm water south to the James River and ultimately into Table Rock Lake. Ward Branch became a focal point of Greene County in 2000 after 11 homes were damaged from a series of flooding events.

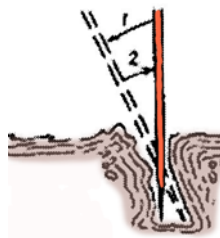
Greene County purchased this property and soon after applied and received funding through a 319 water quality grant to assist in rehabilitating the stream corridor and to reduce future effects of urban flooding. Today, the houses no longer exist. Instead it is a portion of the Ozarks Greenways trail system that runs along this reach that the public and neighbors of Shadow Wood Subdivision enjoy.

Completed work can be viewed by the public. Ward Branch is situated south of Republic Road and can be accessed from Buena Vista east of Campbell Road. The Ward Branch project serves as an example of what can be accomplished when the efforts of many agencies and organizations come together for one cause.

How to Properly Plant a Tree with a Dibble Bar



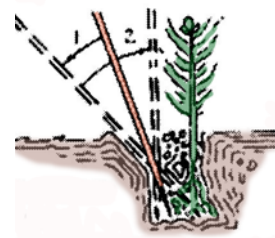
Tree planting bars have blades 3 to 4 inches wide and are 10 to 11 inches long.



Hold bar vertically and drive blade full length into soil. (1) Pull handle toward you 4 to 5 inches, then (2) make a similar thrust in opposite direction.



Remove bar; insert seedling and shake roots out straight in slit.



Drive blade at 30° angle 3 inches behind seedling, (1) Pull bar toward you, then (2) push forward to close bottom and top of slit. Removal of the bar leaves a hole which should be closed to prevent soil drying near roots.

Images from Missouri University Extension Guide G5008

Ozark Forests Off to a Rough Start

Is my tree dead? Should I prune my tree? These are some of the questions landowners are asking following the ice storm and late freeze that portions of the Ozarks experienced. Many trees began spring growth early this year with the warm temperatures experienced in March only to be frozen off over Easter weekend.

While the unusual, January ice storm and late freeze have taken a toll on our forests, trees are very resilient plants. Time should be given to allow trees to set new growth before taking drastic measures. While large, jagged ends from broken branches should be trimmed smooth to minimize the wound, pruning dead leaves resulting from freeze damage should be avoided. This can actually lead to more long-

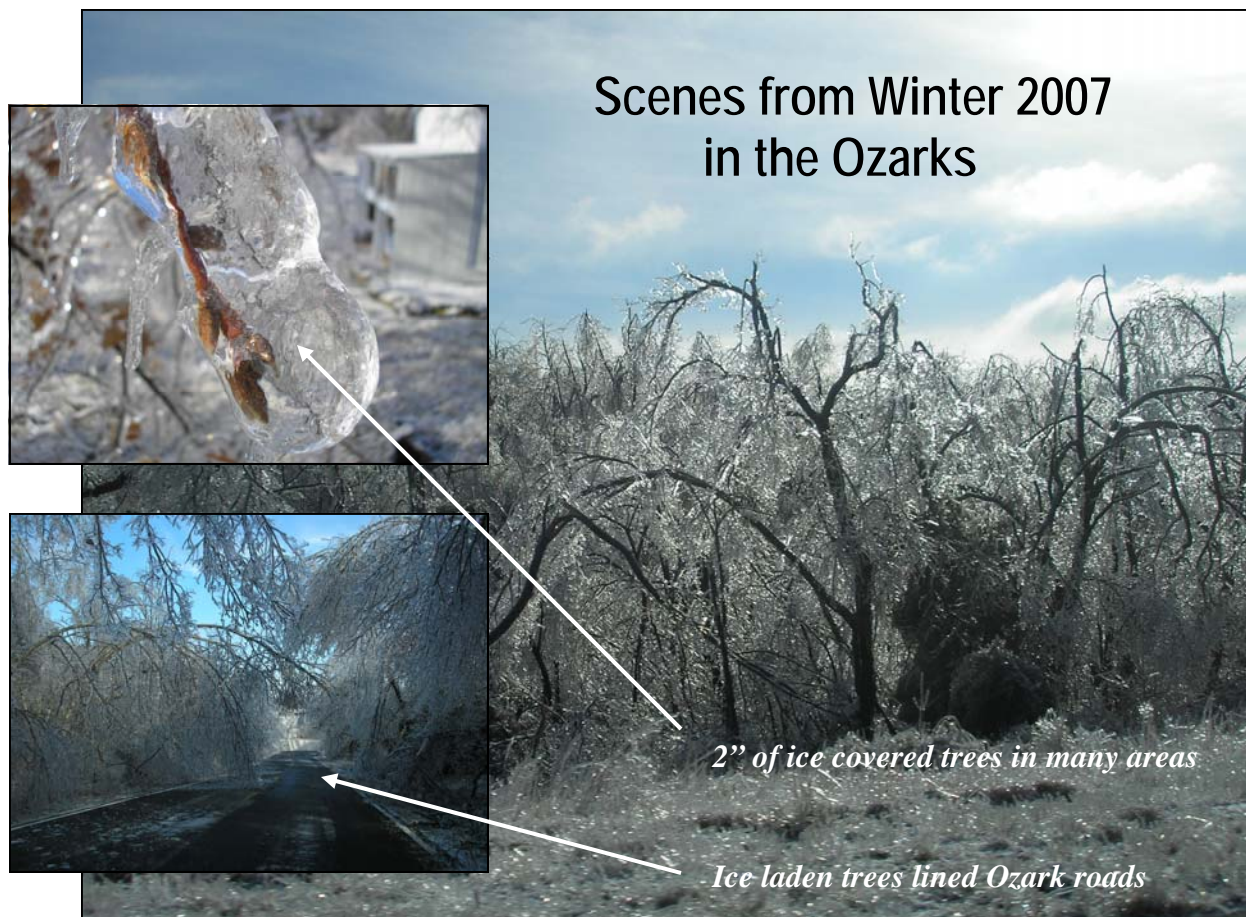
term injury and stress to the tree. Trees have the ability to produce secondary buds that will result in another flush of leaves. Pruning now may remove these buds. In most cases, the frozen leaves will simply dry and fall off. Trees should begin showing signs of growth in late May.

Small diameter trees may have sustained damage to their bark tissue that will interrupt some movement of water and nutrients between the crowns and root systems. Signs may consist of dark lesions along the trunk and dieback or decline of some limbs.

Supplemental watering during periods of dry weather will help to alleviate additional stress. The total impact that our recent weather patterns have had on our trees will

probably not truly be seen for another year or two. We can expect to see an increase in disease and insect damage in the next couple of years. A lot of this will be a result of the large wounds produced from the ice storm that provide good entry points for infection. Added stress of putting on new growth after the late freeze, future infestations of tent caterpillars, fall webworms, and summer drought will only compound the problem.

The lessons learned from our recent ice storm should be considered in selecting species for future tree plantings. While the oaks did suffer, most of the damage was minimal when compared to the faster, usually shorter lived trees such as maple, elms, and pears.



New Employees in the Watershed



Amber Myers, Howell County SWCD District Manager

Amber Myers became the new District Manager at the Howell County SWCD in November 2006. Amber grew up on a farm and says this about her new position, "I learn something new every day and I like the people I work with. I like to work outside and farm. This job allows me to learn new things that I can take home to my family." When asked what her biggest challenge is in the position, she was quick to say, "The

biggest challenge is not being able to learn everything right away. "It will take me a year to really learn everything about this job, because each month and quarter is different." Amber says she has no spare time right now. "I am going to college full time and planning my wedding." **Welcome Amber!**

Nancy Bates began working as the Private Land Conservationist in Douglas County in October 2006. Her biggest challenge in her new position is finding enough hours in the day! She is assisting landowners with "Best Management Practices" for our natural resources with an emphasis on using native plant species to increase wildlife habitat. She has been with MDC for 14 years, previously working as a Resource Assistant with

Forestry. Prior to that, she was employed by DNR for 4 years. Nancy says she is still familiarizing herself with agriculture and enjoys helping landowners. When asked what she does in her spare time, she says, "fishing, hiking, camping, bike riding, and spending time with my family." **Welcome Nancy!**



Nancy Bates, Douglas County Private Land Conservationist



Melissa White, Stone County District Manager

Melissa White joined the Stone County SWCD in February 2007, serving as the District Manager. Her responsibilities include the oversight of the farm cost-share programs, bookkeeping, and informational and educational activities. Melissa says this about her new position, "It takes me back to my agricultural roots, the farming days of my youth. I was a tom-boy growing up and would have rather been outside doing

hard labor than indoors washing dishes or assisting with laundry. My husband and I continued with the family farm until 5 years ago." Melissa enjoys spending her spare time with family, cooking, church activities, and enjoying music. **Welcome Melissa!**

Kevin Wray is the new Technician at the Stone County SWCD. He began in January 2007 and serves the entire county by providing technical assistance on cost-share programs for conservation practices. His current focus is on the Crane Creek SALT (Special Area Land Treatment) project. Kevin says his biggest challenge in his new job is trying to navigate Toolkit and ArcMap, but says he enjoys his work because agriculture is "art and science, yet dependant on natural occurrences." Kevin agreed to share a thought from *Life According to Kevin Wray*: "I have learned life is short, others are more important than me, and laughter is good for you." **Welcome Kevin!**



Kevin Wray, Stone County Technician

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